

**Marking Systems for  
Products and Packing**

Electrolytic Marking Systems  
Laser Marking Systems  
Pinmarking / Scraping  
Impulse Jet Systems  
Pad Printing  
Identification System  
Special Purpose Machines



**ÖSTLING**

**OPERATING INSTRUCTIONS  
MODULMAT Classic  
Semi-automatic unit for  
electrolytic marking**

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Trend Marking Systems  
PO Box 1311  
Castle Hill NSW 2154 AUSTRALIA  
Tel.: +61-2-96299535  
Fax.: +61-2-96297535  
Email: [trend@trendmarking.com.au](mailto:trend@trendmarking.com.au)  
Internet: <http://www.trendmarking.com.au>

modulmat-manual-v104

## Safety tip



- Only authorised persons may open the machine. Unplug the machine before opening.
- In handling the electrolyte you expose yourself to organic and inorganic oxide substances in conjunction with natural water.
- Please request a safety material data sheet for each electrolyte number as per standard 91/155/EWG.

## Application

The below described unit is designed to mark products with metal, electrically conductive surfaces in conjunction with electrolyte. Proper functioning of this unit depends upon correct treatment and maintenance of the system. The operation and maintenance instructions must be studied carefully by all operating personnel before the system is used.

## Copyright

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## Liability

For any error in shipment or damage caused during shipment our liability is limited to those conditions outlined in the Terms of Delivery. Duration of the warranty is stated in the Terms and Conditions. We are not responsible for damage caused from improper handling of the equipment or for damage caused by disregarding the operating instructions.

## EU - Conformity explanation

We herewith declare that the construction of the following illustrated unit conforms to all regulations as required by EU guidelines.

Alterations to the machine not performed by our technicians invalidates this declaration.

Machine type:	Electrolytic marking machine
Model:	MODULMAT Classic
Marking machine:	EU-CLASSIC 300 / EU CLASSIC 500
Machine guidelines: altered through:	89/392/EWG 91/368/EWG; 93/44/EWG; 93/68/EWG;
Low tension guideline: altered through:	73/23/EWG 93/68/EWG
Electromagnetic agreement: altered through:	89/336/EWG 91/263/EWG; 92/31/EWG; 93/68/EWG;
Applied harmonized norms:	EN 292-1; EN 292-2; EN 60 204-1; EN 50 081-1; EN 50 082-1; EN 60 947; EN 60 439;
Applied national standards:	DIN VDE 0100; DIN VDE 0110; DIN VDE 0113; DIN VDE 0660
Place, date:	Solingen, 14.11.97

Legally binding signature:



Rolf Östling

This statement is in accordance with the general guidelines, including no assurance of quality.

The safety precautions included in the product documentation are to be heeded.

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## 1 General Information

The Modulmat is a compact unit consisting of the EU 300 Classic or the EU 500 Classic, a pneumatic unit as well as a jigging for the products to be marked.

## 2 Description of function

The Modulmat is for marking products with metallic, electrically conductive surfaces. Hardened, large, small, flat or round products are no problem to mark with the Modulmat.

Entry voltage to the unit is 115 V or 230 V (AC), and the exit voltage can be infinitely variable from 0 - 30 V (AC or DC), at an output of 330 VA resp. 630 VA.

An integrated timer makes possible an infinitely variable delay in the marking time from 0 - 15 seconds when a footswitch is connected.

The marking head is fed with electrolyte through a pump. The combined action of voltage and electrolyte results in an electrochemical process, which reproduces the logo displayed on the stencil onto the product.

### 2.1 Technical Data

	EU Classic 300	EU Classic 500
Entry voltage	115 V or 230 V, AC	115 V or 230 V, AC
Exit voltage	0 - 30 V (AC or DC)	0 - 30 V (AC or DC)
Power, Wattage, output	330 VA	630 VA
Dimensions (L x W x H)	140 x 380 x 200 mm	140 x 380 x 200 mm
EMV tested	EN 50081-1; EN 50082-1	EN 50081-1; EN 50082-1

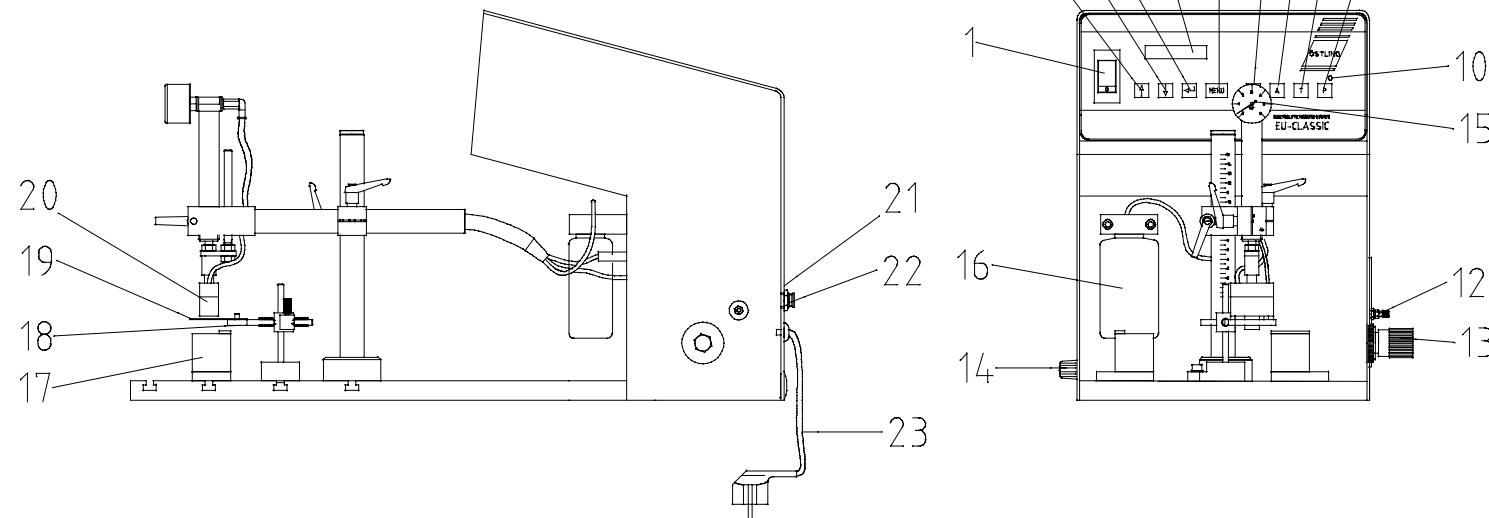


### 3 Technical drawing

Pos. 1 Main switch On / Off  
 Pos. 2 Key ↑ (increase of values)  
 Pos. 3 Key ↓ (decrease of values)  
 Pos. 4 Key ↲ (ENTER)  
 Pos. 5 Key MENU  
 Pos. 6 .Key =/~ (DC/AC)  
 Pos. 7 Automatic key  
 Pos. 8 Timing key  
 Pos. 9 Pump key

Pos. 10 LED  
 Pos. 11 Display  
 Pos. 12 Throttle for cylinder speed  
 Pos. 13 Pressure regulator  
 Pos. 14 Potentiometer for electrolyte adjustm.  
 Pos. 15 Pressure indicator  
 Pos. 16 Electrolyte reservoir  
 Pos. 17 Fix blocks  
 Pos. 18 Stencil holder XYZ

Pos. 19 Stencil mounted into stencil cover  
 Pos. 20 Marking head  
 Pos. 21 Socket for foot switch  
 Pos. 22 Air pressure connection  
 Pos. 23 Power cord



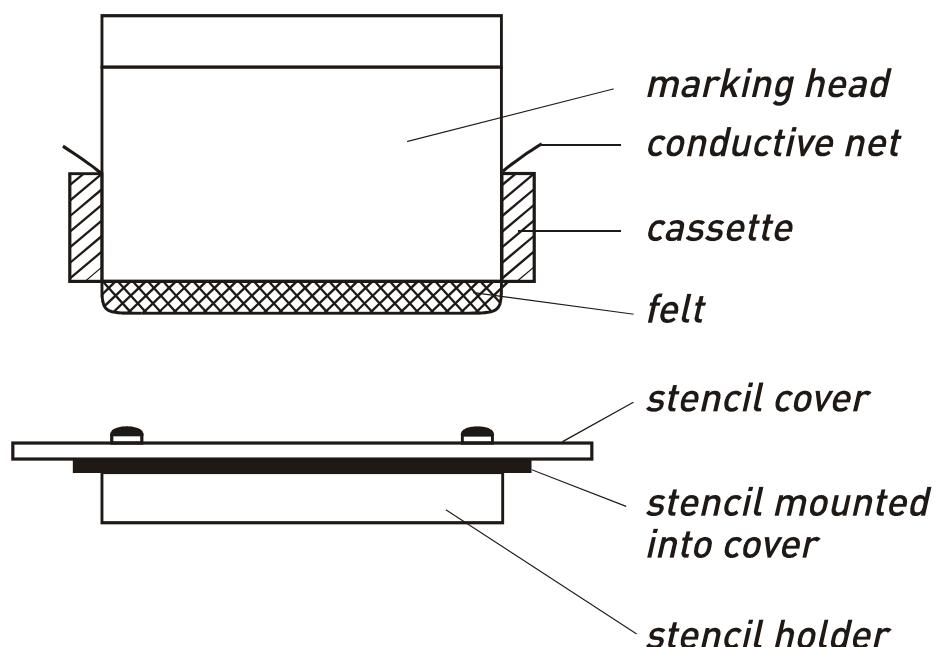
## 4 Start up the system

Be sure that the unit has power (Pos. 23), and that the air pressure valve (Pos. 22) is in proper working order (use a pneumatic tube PUN8). Connect the footswitch to socket (Pos. 21).

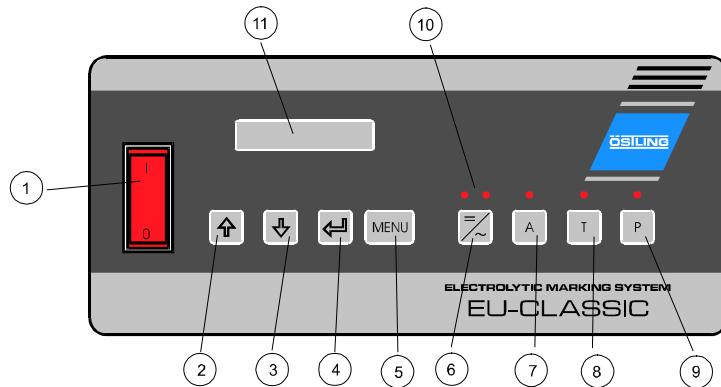
Press the pump key (Pos. 9) in order to soak the marking head with electrolyte from the reservoir (Pos. 16). Thereafter you may turn off the pump, as during operation the pump will work automatically for the time adjusted on the EU Classic. The speed of the pump can be adjusted with the potentiometer (Pos. 14).

### 4.1 Stencil assembly

In this marking machine, stencils (Pos. 19) which fit the Östling stencil holder will work well. The stencil must fit in order that the XYZ stencil holder (Pos. 18) will be able to properly operate.



## 5 Operating the EU Classic



### 5.1 Starting up

After being switched on, the unit will be in the Main Menu mode. The values and settings last adjusted will be kept when the unit is switched off.

The display shows for example **U=08,0V MT=04,0s**

- The keys A, T, P and the START-Input (foot switch) can be operated within the main menu only.
- The keys MENU,  $\uparrow$ , and  $\downarrow$  have no function within the main menu.
- The key  $\leftarrow$  is used to leave the main menu and enter the sub menu *marking voltage*.

### 5.2 Marking voltage

Within the sub menu *marking voltage* only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$ , MENU and  $=/\sim$  can be operated.

- The key  $=/\sim$  allows you to switch between DC and AC voltage. The LED's above the key show the present current flow.
- The key  $\uparrow$  (pos. 2) increases, the key  $\downarrow$  (pos. 3) decreases the output voltage by 0.2 Volt ( $U_{\min} = 0.2$  V;  $U_{\max} = 30.0$  V) each.
- By operating the key  $\leftarrow$  the adjusted value is accepted.
- By operating the MENU key (pos. 5) the adjusted value is not accepted, and the main menu is re-entered.

### 5.3 Marking time

In the sub menu *marking time* only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$  and MENU can be operated.

- The key  $\uparrow$  increases, the key  $\downarrow$  decreases the marking time MT by 0.1 second each ( $MT_{min} = 0.1$  s;  $MT_{max} = 15.0$  s).
- By using the key  $\leftarrow$  the new value is accepted, and you will re-enter the main menu.
- By using the key MENU the new value is not accepted, and you will re-enter the main menu.
- If the pumping time option is activated, it is possible to enter the sub menu *pumping time*.

### 5.4 Pump time

In the sub menu pumping time only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$  and MENU can be operated.

- The key  $\uparrow$  increases, the key  $\downarrow$  decreases the pumping time PT by 0.1 second each ( $PT_{min} = 0.1$  s;  $PT_{max} = 10.0$  s).
- By operating the key  $\leftarrow$  the new value is accepted, and you will re-enter the main menu.
- By operating the key MENU the new value is not accepted, and you will re-enter the main menu
- If the option pump delay is activated, you may enter the sub menu Retarder.

### 5.5 Retarder (Option)

In the sub menu *retarder* only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$  and MENU can be operated.

- The key  $\uparrow$  increases, the key  $\downarrow$  decreases the retarder by 0.1 second each ( $RT_{min} = 0.1$  s;  $RT_{max} = 10.0$  s).
- By operating the key  $\leftarrow$  the new value is accepted, and you will re-enter the main menu.
- By operating the key MENU the new value is not accepted, and you will re-enter the main menu.

## 5.6 Counter (Option)

You can see the actual number of markings on the display:

Counter= 00022

By operating the key ↓ the counter will be reset.

## 5.7 Original settings

All settings can be reset to their original settings by pressing the key MENU and turning the unit on.

Output voltage	U = 08,0 V
Marking time	MT = 02,0 s
Pumping time	off; PT = 0,00 s
Retarder	off; RT = 0,01 s
Type of output voltage: AC	AC-LED = on; DC-LED = off
Timer function	off; T-LED = off
Output magnet valve (24 V)	off; A-LED = off
Output pump (230 V)	off; P-LED = off
Counter	00000
Language	English

## 6 Marking procedure

- Turn the unit on using the ON-OFF switch (pos. 1).
- Depending upon marking needs (see point 10) use the DC/AC key (pos. 6) to set the marking type.  
AC (Alternating current) for black marking. The right hand light is lit.  
DC (Direct current) for a deep mark. The left hand light is lit.
- In the sub menu *voltage setting* (see point 5.2) the output voltage can be infinitely set from 0 - 30 V. The display (pos. 11) shows the current setting.
- Adjust the requested marking time (see point 5.3)
- Press the keys Automatic (pos. 7) and timer (pos. 8). The respective LED will lit.
- Place the product to be marked into the jigging (pos. 17) and press the foot switch. Marking head (pos. 20) moves downwards and presses the stencil as per the pre-adjusted marking time onto the product. In order to obtain a satisfactory marking, the cylinder requires a pressure of around 4.5 to 5 bar, readable on the pressure indicator (pos. 15). Adjustment of the pressure can be done using the integrated pressure regulator (pos. 13). The marking head should move easy and steady onto the product to be marked. The speed of the cylinder can be adjusted using the integrated throttle (pos. 12).
- Simultaneously to the marking the electrolyte will be pumped according to the pump time adjusted (see point 5.4).
- Having reached the pre-adjusted marking time, the cylinder moves upwards and the marked product can be taken.
- If the option Counter is activated and unit is operated in automatic mode with timer, the display

Counter = 00000

is shown for a few seconds in the main menu.

The counter is increased by each marking. The counter can be reset once the requested amount of markings has been reached as described under point 5.6.

## 6.1 Remarks

- General instructions for voltage and marking time cannot be provided in the operation instructions, as these parameters are depending upon the product to be marked.
- In order to obtain a long life time of the stencil, we recommend to strive for a low voltage and short marking time.
- After finishing the marking, felt, conductive net and stencils should be cleaned with ordinary tap water.
- Should you notice that the marking quality deteriorates, please inspect felt and conductive net, as during marking an operational carbonisation of the felt takes place i.e. felt and net have to be replaced from time to time.
- To prevent a short circuit, please take care, that the marking head does not get in direct contact with the product fixture.

## 7 Maintenance

Regular maintenance is not necessary.

**Should there be a problem, however, please contact our service department. Opening the unit without proper authorisation voids the warranty.**

## 8 Accessories

Due to the modular construction of our marking systems, the sequences of operation can be automated (transfer equipment, indexing tables, automatic handling etc.).

Our technicians would be pleased to assist with any further questions.

## 9 Trouble shooting

### 9.1 Problem: No mark at all

Please check:

- Is the main power cable connected and the etching machine switched on?
- Are the electrode and pneumatic cables correctly connected?
- Has the voltmeter been activated?
- Is the marking head moistened with electrolyte?
- Is the electrolyte reservoir filled with electrolyte?

Note:

- You can only mark products which conduct electricity.
- Painted, anodised or otherwise coated surfaces are not suitable for marking by electrolytic etching.

### 9.2 Problem: Mark is not clear

- Make sure that the stencil is clean.
- Wash the stencil in water to remove oxides.
- Also make sure that the surface of the product is clean. Wipe off dirt or excess oil with a dry cloth before marking.
- Is the marking head moistened with electrolyte?
- Normal usage yields slight discolouration of the stencil, for this reason we recommend that you change stencils from time to time.

### 9.3 Problem: Black spots around the mark

- The stencil is worn out or has been treated improperly and holes have developed in the red portion of the stencil. Replace the stencil with a new one or prolong the life of the old stencil by covering over the damaged areas with adhesive tape.

## Hints:

Please contact us if:

- you have technical problems.
- you need marked samples.
- you need any additional accessories such as marking heads in different sizes, felt, electrolyte for other types of materials, stencil covers, fixtures, etc.
- you need information about our other products such as pad printing, needle embossing, laser marking or ink-jet-systems.

## 10 Choice of electrolytes

Type of marking	Type of voltage	Voltage	Marking time	Felt	Material	Electrolyte	Remarks
Black-etching	AC	8 V	1-2 s	Black with conductive net	Stainless steel	6744, 70, 72, SP1	Neutralise with N8
					Alloyed Steel	6744	Neutralise with N8
					Steel	676, 74, 67/10/3, 676R74	Corrosion free electrolyte
					Chrome, Nickel	75	The marking time is dependent on coating thickness with chrome products.
					Zinc coated	639, 6578	
					Titanium	6578	Depending of alloy, the hard metal option may be necessary.
					Hard metal	332/2	
White-etching	AC	8 V	1-2 s	Black with conductive net	Black oxidised (Homo steamed)	114 Soft 119 Medium 117 Strong	Neutralise with N8
Deep-Etching	DC	approx. 20 -25 V	> 3 s	Green	Brass Aluminium	DE40, DE90 DE40, DE90	In the case of deep etching the marking time is dependent on the desired depth. This can last up to a few minutes.

**Electrolyte must be removed after the marking process!**

## ÖSTLING – World wide



ÖSTLING Markiersysteme GmbH  
Brosshauserstraße 27  
D- 42697 Solingen  
Tel.: +49 212 - 2696-0  
Fax: +49 212 - 2696-199  
Internet: <http://www.ostling.com>  
Email: [info@ostling.com](mailto:info@ostling.com)

### Switzerland

ÖSTLING  
Markiersysteme AG  
Eichenweg 16  
CH- 4900 Langenthal  
Tel.: +41 - 62 - 922 8020  
Fax: +41 - 62 - 922 6617

### France

ÖSTLING  
Système de Marquage  
Technopôle Metz 2000  
9 rue Claude Chappe  
F- 57070 Metz  
Tel.: +33 - 387 - 76 83 39  
Fax: +33 - 387 - 76 83 29

### Sweden

ÖSTLING  
Märksystem AB  
Box 10 24  
Industrivägen 10 B  
S- 17121 Solna  
Tel.: +46 - 8 - 51490510  
Fax: +46 - 8 - 51490529

### Singapore

ÖSTLING  
Marking Systems Pte Ltd  
32 Wallich Street  
#01-64 Wallich Building  
SGP- Singapore 078880  
Tel.: +65 - 323 - 6901  
Fax: +65 - 323 - 6903

### USA

ÖSTLING  
Marking System Inc.  
9851 Thomas Drive, Suite 109 -112  
Panama City Beach, 32407 Florida  
Tel.: +1 - 850 - 23 47 271  
Fax: +1 - 850 - 23 06 784

### Australia

Trend Marking Systems  
PO Box 1311  
Castle Hill, NSW, 2154  
Tel.: +61-2-96299535  
FAX: +61-2-96297535  
[www.trendmarking.com.au](http://www.trendmarking.com.au)